

Remarks

Claims 1-30 were pending in this application. In a final Office Action dated May 20, 2004, the Examiner rejected claims 1-24, 26-28 and 30 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,158,019 to Squibb (henceforth, Squibb). The Examiner objected to claims 25 and 29 as being dependent upon rejected base claims but as otherwise expressing allowable subject matter. Claims 5, 23-25 and 29 have been canceled, claims 1 and 26 have been amended, and new claims 31-44 have been added. Reconsideration of this case is respectfully requested in light of these amendments and the following remarks.

Claim 1 has been amended to include the limitations of dependent claims 5 and 23-25. Since the Examiner indicated claim 25 contained patentable subject matter, claim 1 is believed to be patentable over Squibb. Claims 2-4, 6-11, 26 and 43 depend from claim 1 and are therefore also patentable.

New claim 31 includes the limitations of claims 12, 16 and 27-29. Since the Examiner indicated claim 29 contained patentable subject matter, claim 31 is believed to be patentable over Squibb.

Claim 12 provides a data management appliance including a random access storage unit and control circuitry adapted to receive commands from a computer system. In response to the control circuitry receiving a write command from the computer system, the control circuitry updates the random-access storage unit to include information associated with the write command. In response to a *mount command* including a time value, the control circuitry configures itself to perform future read operations with respect to a fixed time represented by the time value. In response to a *read command* including a logical address, the control circuitry retrieves from the random-access storage unit data representing contents of the logical address at the fixed time.

The Examiner rejected claim 12 as anticipated by Squibb. In particular, the Examiner stated the following about Applicant's control circuitry responding to a mount command at page 5:

In addition, it should be noted that the mount command including a time value, the control circuit configures to perform future read operations with respect to a fixed time represented by the time value is being equivalent to the fulfilling a read

request for an updated storage from the combination of fig. 4A having an original storage 6, and event journal 21 and an event map 29 (e.g. see figure 4B, column 11, lines 1 et seq.).

Neither the figures nor the text cited teach or suggest in any way Applicant's control circuit.

Figure 4A is a block diagram with blocks illustrating "ORIGINAL STORAGE," "EVENT JOURNAL," "EVENT MAP" and "FULLFILL A READ FROM FOR UPDATED STORAGE [sic]." There is no mention of a mount command or of any response to a mount command. Figure 4B is a flow diagram illustrating "an exemplary method for fulfilling a read request." (Col. 6, ll. 12-13.) Again, no teaching or suggestion of a mount command or of any response to a mount command. The cited text is reproduced as follows:

The flowchart of FIG. 4B describes an exemplary method for fulfilling a read request from the combination of FIG. 4A comprising an original storage 6, an event journal 21 and an event map 29. A read request is composed, for example, of two elements: a data position; and a read size. The data position gives, for example, the starting address relative to an origin of the data to be read. The read size gives, for example, the count of elemental units to be obtained from the storage. The sum of the data position and the read size gives the address of the ending read address.

There is no teaching or suggestion of a mount command. Further, there is no teaching or suggestion of a time value accompanying any command. In fact, Squibb does not mention a mount command anywhere.

A reference cannot anticipate a claim if it does not teach each element of the claim. Since Squibb fails to disclose a mount command in any form, Squibb cannot anticipate claim 12. Claims 13-22, 27, 28, 30 and 44 depend from claim 12 and are therefore also patentable.

Newly added independent claim 32 provides a method of replicating data written to a data storage system. A mirror-in-the middle (MIM) records an exact copy of the data storage system at a fixed point in time. A forward journal holds write events received since the fixed point in time. A request to access replicated data as the replicated data existed at a requested time is received. A virtual recovery mapping object (VRMO) is constructed from the forward journal based on the requested time. The VRMO translates received logical addresses representing locations on the data storage system to physical locations of the

replicated data. The VRMO is implemented in a random access structure and references replicated data as a copy of data written to the data storage system since the fixed point in time. Squibb neither teaches nor suggests such a method.

Applicant believes pending claims 1-4, 6-22, 26-28 and 30-44 meet all substantive requirements for patentability. Applicant therefore respectfully requests that this case be passed to issuance. A fee of \$248 is due for one additional independent claim over three and for nine additional claims. This fee plus any other additional fee due may be withdrawn from StorageTek's Deposit Account No. 19-4545.

Respectfully submitted,

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